CHAPTER 2

CERTIFIED DUAL-POINT RIGGING PROCEDURES FOR WHEELED VEHICLES

2-1. INTRODUCTION

This chapter contains rigging procedures for dual-point wheeled vehicle loads that have been certified for sling load. Each rigging procedure is found in a paragraph that includes a description of the load, materials required for rigging, and steps to complete the procedure. An applicability paragraph is also a part of each paragraph and identifies the certified loads. The certified dual-point rigging procedures for wheeled vehicles are in this section.

Paragraphs 2-2 through 2-34 give detailed instructions for rigging loads. The paragraphs also contain a description of each load and the materials required for rigging it.

NOTE: Reach Pendants may be used on dual point loads. Place a Reach Pendant on each apex fitting. A static discharge person is not required when using a Reach Pendant.

2-2. M996/M997/M997A2 Truck, Ambulance (HMMWV)

a. Applicability. The following items in Table 2-1 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-1. Truck, Ambulance (HMMWV)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, Ambulance, M996, HMMWV	7,400	10K 25K	80/45 66/38	CH-47	130
Truck, Ambulance, M997, HMMWV	7,400	10K 25K	80/45 66/38	CH-47	130
Truck, Ambulance, M997A1, HMMWV, 4-Litter	7,600	15K 40K	25/3 30/9	CH-53	120
Truck, Ambulance, M997A2, HMMWV	10,300	25K	66\38	CH-47	130

b. Materials. The following materials are required to rig this load:

(1) Sling set (see table) with one additional apex fitting or web ring for the sling set being used.

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Spreader bar assembly (component of vehicle).

(5) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

c. Personnel. Two persons can prepare and rig this load in 15 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Fold the mirrors forward in front of the windshield and tie together with Type III nylon cord.

(b) Remove the spreader bar from under the right-hand seat inside the ambulance.

(c) Secure all equipment inside the rear compartment with tape, nylon cord, and/or lashings. Close and secure the door.

(d) Secure all other equipment inside the vehicle with tape, nylon cord, and/or lashings. Close and secure the doors.

(e) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(f) Engage the vehicle parking brake. Place the transmission in neutral.

(g) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel using the securing device attached under the dashboard.

(h) Secure the Red Cross insignia covers in the closed position.

(i) Remove the keeper from the spreader bar and extend the bar so the holes line up. Reinstall pin and engage keeper. Use the sighting hole in the tube to assist in aligning holes for the pin. See top view insert in Figure 2-1.

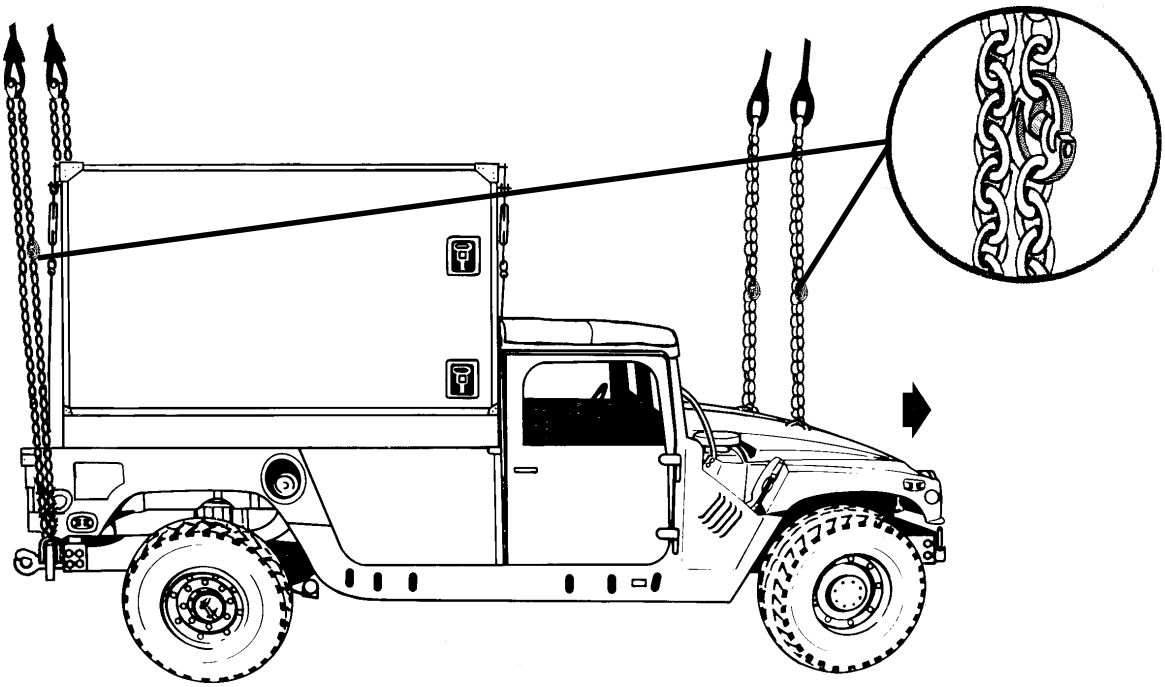
(j) Position the spreader bar across the rear end of the vehicle roof. Attach the spreader bar check cables to the eyebolts located on the aft exterior sidewall of the rear compartment. See rear view insert in Figure 2-1.

(k) Install lift provisions on the outer ends of the rear bumper.

(2) Rigging. Rig the load according to the steps in Figure 2-1.

(3) Hookup. The static wand person discharges the static electricity with the static wand. The forward hookup person stands on the hood and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the roof and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the hood.

2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-4 in the grab hook.

3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting in the bed of the vehicle.

4. Loop the chain end through the lift shackle on the rear bumper located on the outer ends of the bumper. Place the correct link from Table 2-4 in the grab hook.

5. Wrap the rear slings with padding where they contact the shelter sides.

6. Secure all excess chain with tape or Type III nylon cord.

7. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-4. M1037 Shelter Carrier with S-250/S-250E Shelter

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

2-6. M1097 Shelter Carrier, Heavy HMMWV, With S-250 or S-250E Shelter

a. Applicability. The following items in Table 2-5 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-5. Shelter Carrier, (Heavy HMMWV), With S-250/S-250E Shelter

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
S-250/S-250E	10,001	25K	60/10	CH-47	120
AN/TRC-170 Communication Shelter	9,240	15K	40/3	CH-53	130
TRQ-32, Intelligence and Electronic Warfare (IEW) System	9,700	10K	60/10	CH-47	120
Platoon Operations Center (POC), Intelligence and Electronic Warfare (IEW) System	9,700	10K	60/10	CH-47	120
Mobile Subscriber Equipment Contingency Communications Package/Light Forces Contingency Communications Package in S-250E	9,993	10K	60/10	CH-47	120
Mobile Subscriber Equipment Contingency Communications Package/Light Forces Contingency Communications Package in S-250	8,913	10K	60/10	CH-47	120
LOS (V1)	9,038	10K	60/10	CH-47	120
LOS (V2)	9,038	10K	60/10	CH-47	120
LOS (V3)	9,038	10K	60/10	CH-47	120
LOS (V4)	9,038	10K	60/10	CH-47	120
NODAL Support Vehicle	8,250	10K	60/10	CH-47	120

NOTE: All certified shelters in paragraph 2-5 (M1037) Shelter Carrier, HMMWV, With S-250/S-250E Shelter) are certified for sling loading on the M1097 Shelter Carrier with an increased maximum weight of 300 pounds.

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity or 25,000-pound capacity) with one additional apex fitting for the

sling set being used.

OR

(2) Multileg sling set (15,000-pound capacity for the CH-53E only) with one additional web ring.

(3) Additional chain lengths from the sling set being used (4 each).

(4) Additional coupling links from the sling set being used (4 each).

(5) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(6) Cord, nylon, Type III, 550-pound breaking strength.

(7) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(8) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

c. Personnel. Two persons can prepare and rig this load in 15 to 25 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Connect one additional chain length to each chain of the sling set with the coupling link.

(b) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord.

(c) Secure the shelter to the truck using wire rope or tie-down assemblies. Secure all equipment inside the shelter with tape, nylon cord, or lashings; close and secure the door.

(d) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

(e) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(f) Engage the vehicle parking brake and put the transmission in neutral.

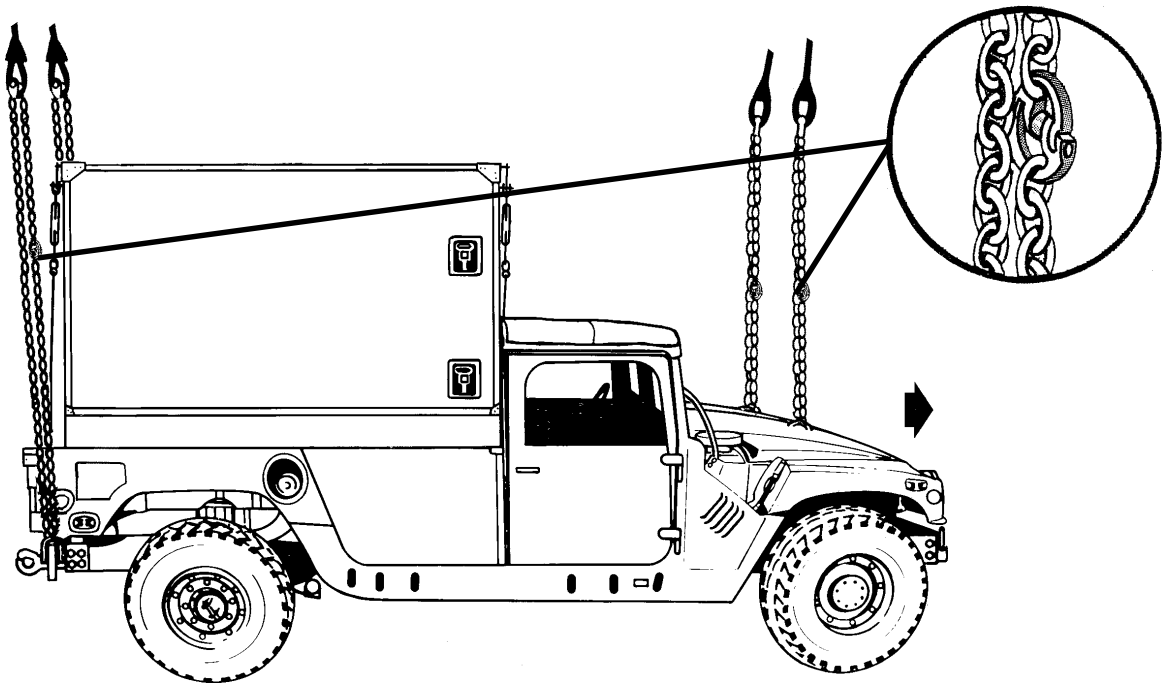
(g) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(h) Install the lift provisions on the outer ends of the rear bumper.

(2) Rigging. Rig the load according to the steps in Figure 2-5.

(3) Hookup. The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the hood.

2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-5 in the grab hook.

3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting in the bed of the vehicle.

4. Loop the chain end through the lift shackle on the rear bumper located on the outer ends of the bumper. Place the correct link from Table 2-5 in the grab hook.

5. Wrap the rear slings with padding where they contact the shelter sides.

6. Secure all excess chain with tape or Type III nylon cord.

7. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-5. M1097 Shelter Carrier with S-250/S-250E Shelter

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

2-7. M1097/M1097A2 Shelter Carrier (HMMWV) With Lightweight Multipurpose Shelter (LMS)

a. Applicability. The following items in Table 2-6 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-6. Lightweight Multipurpose Shelter (LMS)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
High Mobility Downsized (HMD) Direct Air Support Central	8,420	15K	40/3	CH-53	120
Operations Central (OC) Group Firefinder AN/TPQ-36 (V) 8	8,620	10K	40/3	CH-47 CH-53	120 120
Integrated Meteorological Systems (IMETS), Block I & II	9,050	10K	40/3	CH-53	120
Enhanced Position Location Reporting System (EPLRS) Downsized Net Control Station (NCS-E(D))	10,000	15K	40/3	CH-53	120
Digital Group Multiplexer (DGM) AN/TRC-138C	9,020	10K	40/3	CH-47	120
High Mobility Digital Group Multiplexer Assemblage (HMDA) AN/TRC-173B, AN/TRC-174B, AN/TRC-175B	9,100	10K	40/3	CH-47	120
High Frequency Communications Central AN/TRC 120	8,765	15K	40/3	CH-53	150
Marine Expeditionary Force Intelligence Analysis System (IAS)	9,220	15K	40/3	CH-47	120
Spare Equipment and Maintenance Shelter AN/TSQ-190 (V) 1	9,220	10K	40/3	CH-47	120
Tactical Remote Sensor System (TRSS) Sensor Mobile Monitoring System (SMMS)	7,685	15K	40/3	CH-53	120
Meteorological Measuring Set AN/TMQ-41	7,770	15K 10K	40/3 40/3	CH-53 CH-47	110 110

Table 2-6. Lightweight Multipurpose Shelter (LMS) (Continued)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Air Defense Communications Platform AN/MSQ-124	10,000	15K	40/3	CH-53	120
Forward Area Air Defense Command Control System AN/TSQ-183	7,561	10K	40/3	CH-47	90
Forward Area Air Defense Command Control System AN/TSQ-184	7,297	10K	40/3	CH-47	90
Mobile Radio Broadcasting Subsystem (MRBS)	9,746	10K	40/3	CH-47	120
Mobile Radio (MR) Cargo Vehicle	9,907	10K	40/3	CH-47	120
Mobile Television Broadcasting Subsystem (MTBS)	9,295	10K	40/3	CH-47	120
Mobile Television (MT) Cargo Vehicle	9,637	10K	40/3	CH-47	120
Mission Vehicle for the Common Ground Station, Joint Surveillance Target Attack Radar (JSTAR) System	9,530	10K	40/3	CH-47	120
Marine Expeditionary Force Intelligence Analysis System S1	9,194	15K	40/3	CH-53	100
Marine Expeditionary Force Intelligence Analysis System S2	9,126	15K	40/3	CH-53	100
Tactical Control and Analysis Center	9,300	15K	40/3	CH-53	100
Advanced Field Artillery Tactical Data Systems (AFATADS), System #1, RWS with a CHS-2 AN/GYG-3(V)1	8,882	10K	40/3	CH-47	100

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).

(b) Coupling link, part number 577-0615, from a 10,000-pound sling set (4 each).

OR

(2) Multileg sling set (15,000-pound capacity for the CH-53E only) with one additional web ring.

(a) Additional chain lengths from the multileg sling set (8 each).

(b) Additional coupling links from the multileg sling set (8 each).

(3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(4) Cord, nylon, Type III, 550-pound breaking strength.

(5) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(6) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

(7) Padding, cellulose.

c. Personnel. Two persons can prepare and rig this load in 15 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Extend the sling leg chains by connecting one additional chain length to each chain on a 10,000-, 25,000- or 40,000-pound capacity sling set with coupling links. Connect two additional chain lengths to each chain on the 15,000-pound multileg sling set chain with coupling links.

(b) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord.

(c) Secure all equipment inside the shelter with tape, nylon cord, or lashings; close and secure shelter vents and door with nylon cord or tape.

(d) Secure environmental control unit cover with duct tape.

(e) Disconnect the power cord from the rear panel and secure it to the rear platform with Type III nylon cord. Lower the power panel door and secure the door.

(f) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

(g) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(h) Engage the vehicle parking brake and put the transmission in neutral.

(i) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(j) Tape the windshield in an X formation from corner to corner.

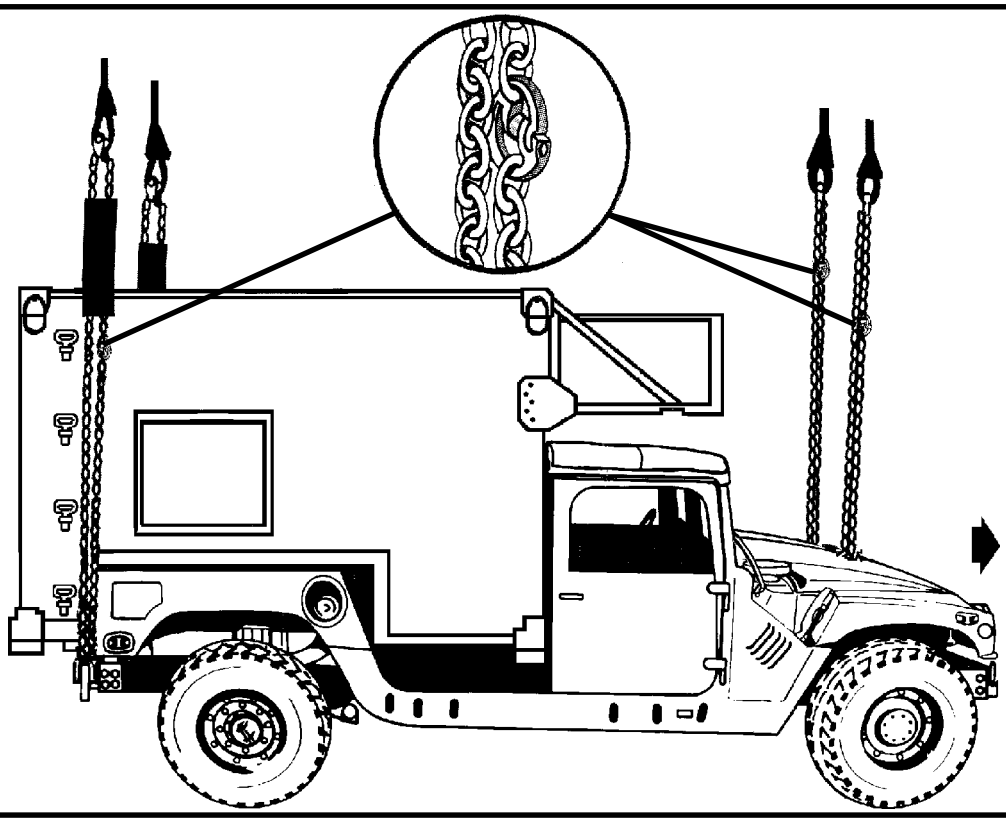
(k) Install the lift provisions on the outer ends of the rear bumper.

(l) Remove the upper antenna mounting bracket if installed.

(2) Rigging. Rig the load according to the steps in Figure 2-6.

(3) Hookup. The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful

hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point. **(4) Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the shelter.

2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-6 in the grab hook.

3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the shelter.

4. Loop the chain end of the sling legs through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 2-6 in the grab hook.

5. Wrap the rear slings with padding where they contact the shelter sides.

6. Secure all excess chain with tape or Type III nylon cord.

7. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-6. LMS Shelter Mounted on the M1097 /M1097A2

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

2-32. M1037 (HMMWV) With Compressed Air-Foam System, Mobile (CAFSM)

a. Applicability. The following item in Table 2-31 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-31. M1037 (HMMWV) With Compressed Air-Foam System, Mobile (CAFSM)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Compressed Air-Foam System, Mobile	6,400 (EMPTY)	15K	40/3	CH-53	130

Note: The water tank in the CAFSM MUST BE EMPTY for sling loading.

b. Materials. The following materials are required to rig this load:

(1) Sling set (15,000-pound capacity for the CH-53 only) with one additional web ring.

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

c. Personnel. Two persons can prepare and rig this load in 15 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord. Remove the canvas cab top and the doors. Secure to the seats with Type III nylon cord.

(b) Ensure the CAFSM is secured to the truck. Secure all lids, doors, and vents on the CAFSM with tape or Type III nylon cord. Safety tie all chains and hoses with tape or Type III nylon cord.

(c) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings.

(d) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(e) Engage the vehicle parking brake and put the transmission in neutral.

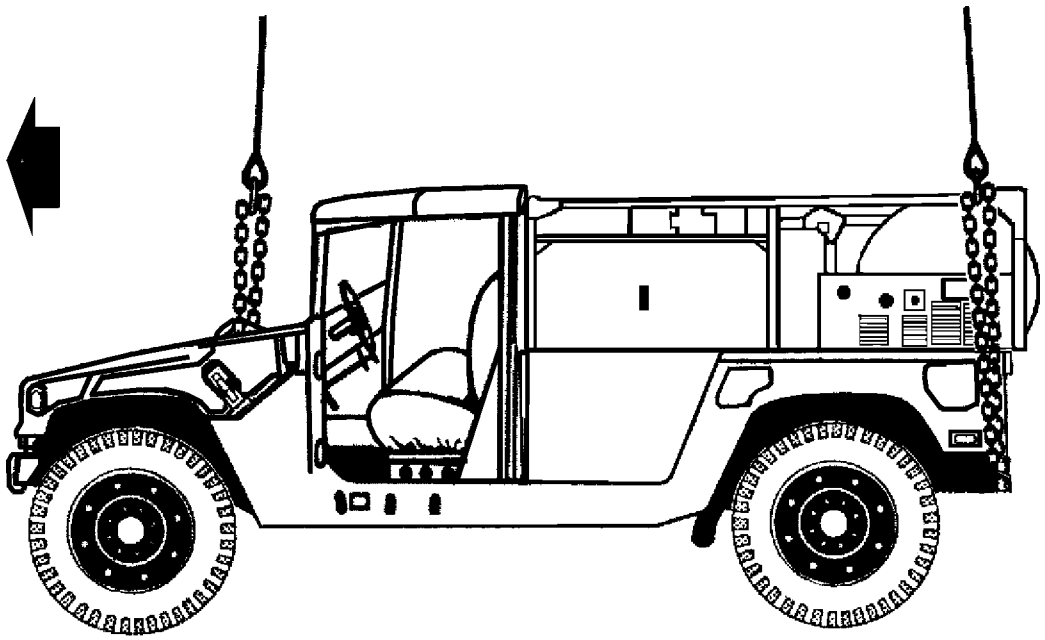
(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(g) Tape the windshield in an X formation from corner to corner.

(2) Rigging. Rig the load according to the steps in Figure 2-30.

(3) Hookup. The hookup team stands on top of the vehicle. The static wand person discharges the static electricity with the static wand. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on the hood of the vehicle.

2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-31 in the grab hook.

3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting in the cargo bed of the vehicle.

4. Loop the chain end of the sling legs through their respective lift shackle on the outside end of the rear bumper. Place the correct link from Table 2-31 in the grab hook.

5. Secure all excess chain with tape or Type III nylon cord.

6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-30. M1037 (HMMWV) With Compressed Air-Foam System, Mobile (CAFSM)

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

2-21. Medium Tactical Vehicles M1083/M1083A1/M1084/M1085/M1086/M1090/M1090A1/ M1093/M1094

a. Applicability. The following items in Table 2-20 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-20. Medium Tactical Vehicles

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Medium Tactical Vehicle, Cargo, M1083	23,200	25K	30/20	CH-47	110
Medium Tactical Vehicle, Cargo, M1083A1	23,200	25K	30/20	CH-47	110
Medium Tactical Vehicle, Cargo, M1083	28,000	40K	24/16	CH-53	110
Medium Tactical Vehicle, Cargo, M1083A1	28,000	40K	24/16	CH-53	110
Medium Tactical Vehicle, Cargo, with Material Handling Equipment, M1084	28,000	40K	19/16	CH-53	110
Medium Tactical Vehicle, Cargo, Longbed, M1085	28,000	40K	24/16	CH-53	110
Medium Tactical Vehicle, Cargo, Longbed, with Material Handling Equipment, M1086	28,000	40K	17/16	CH-53	110
Medium Tactical Vehicle, Dump Truck, M1090	22,100	25K	30/3	CH-47	110
Medium Tactical Vehicle, Dump Truck, M1090A1	23,200	25K	30/3	CH-47	110
Medium Tactical Vehicle, Dump Truck, M1090	22,100	40K	3/10	CH-53	110
Medium Tactical Vehicle, Dump Truck, M1090A1	24,817	40K	3/10	CH-53	110
Medium Tactical Vehicle, Cargo, Airdrop Variant, M1093	23,200	25K	30/20	CH-47	110
Medium Tactical Vehicle, Dump Truck, Airdrop Variant, M1094	22,770	25K	30/3	CH-47	110

WARNING
EXCEEDING THE RECOMMENDED AIRSPEED LISTED IN TABLE 2-20 MAY RESULT IN DAMAGE TO THE WINDSHIELDS OF THE VEHICLES.

RIGGING STEPS	
1. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on the forward end of the bed.	sling leg using one coupling link. Position the apex fitting on the rear of the cargo bed.
2. Loop the chain end of the sling legs through their respective lift provisions located behind the vehicle cab. Place the correct link from Table 2-20 in the grab hook and secure all excess chain with tape or Type III nylon cord.	**5.** Route the left and right chains through their respective rear load spreader and loop the chain end of the sling legs through their respective lift ring, located on the chassis between the tires. Route the chains back through the rear load spreaders and place the correct link from Table 2-20 in the grab hook. Secure all excess chain with tape or Type III nylon cord.
3. Cluster and tie or tape (breakaway technique) the sling legs on top of the spare tire to prevent entanglement during hookup and lift-off.	**6.** Cluster and tie or tape (breakaway technique) the sling legs together to prevent entanglement during hookup and lift-off.
4. Connect 2 sling legs to apex fitting number 2. Attach one extra chain length to each existing chain on each	

Figure 2-19. Medium Tactical Vehicles (continued)

2-22. Medium Tactical Vehicle, Tractor, M1088/M1088A1

a. Applicability. The following items in Table 2-21 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-21. Medium Tactical Vehicles, Tractor, M1088/M1088A1

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Medium Tactical Vehicle, Tractor, M1088	19,740	25K	40/3	CH-47	110
Medium Tactical Vehicle, Tractor, M1088A1	19,740	25K	40/3	CH-47	110
Medium Tactical Vehicle, Tractor, M1088	19,740	40K	3/20	CH-53	110
Medium Tactical Vehicle, Tractor, M1088A1	19,740	40K	3/20	CH-53	110

WARNING
EXCEEDING THE RECOMMENDED AIRSPEED LISTED IN TABLE 2-21 MAY RESULT IN DAMAGE TO THE WINDSHIELDS OF THE VEHICLES.

b. Materials. The following materials are required to rig this load:

(1) Sling set (25,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (2 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (2 each).

OR

(2) Sling set (40,000-pound capacity) with one additional apex fitting.

(3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(4) Cord, nylon, Type III, 550-pound breaking strength.

(5) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

c. Personnel. Two persons can prepare and rig this load in 15 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Extend the front lift provisions and lock in place using the attached pin and safety pin.

(b) Roll up the windows in the cab.

(c) Tape all windows, lights, and reflectors.

(d) Remove the air intake cowling by loosening the the clamp and twisting off. Place the cowling on the floor board of the passenger's side.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel using the driver's side seat belt.

(f) Fold the side view mirrors back and secure with tape or Type III nylon cord

.

(g) Stow the mud flaps by bending and hooking on the mud flap hooks.

(h) Engage the vehicle parking brake and put the transmission in neutral.

(i) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(j) Tape the filler pipes behind the cab on the driver's side to prevent the sling legs from becoming entangled.

(2) Rigging. Rig the load according to the steps in Figure 2-20.

(3) Hookup. The hookup team stands on the rear of the vehicle. The static wand person discharges the static electricity with the static wand. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

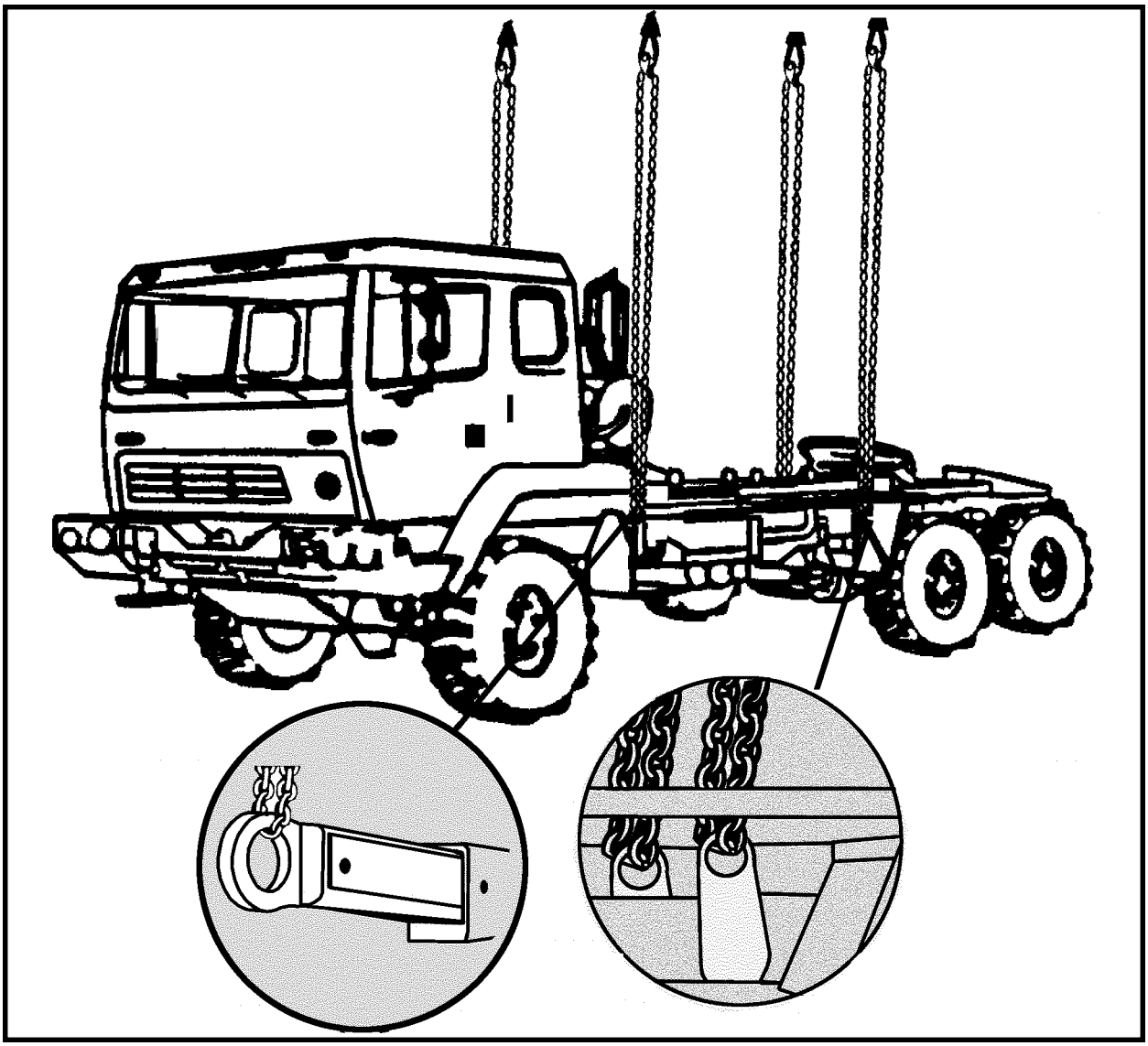


Figure 2-20. Medium Tactical Vehicles, Tractor,M1088/M1088A1

RIGGING STEPS
1. Connect 2 sling legs to apex fitting number 1. Attach one extra chain length to each existing chain on each sling leg using one coupling link (for 25,000-pound capacity sling sets only). Position the apex fitting on the forward end of the bed. **2.** Loop the chain end of the sling legs through their respective lift provisions located behind the vehicle cab. Place the correct link from Table 2-21 in the grab hook and secure all excess chain with tape or Type III nylon cord. **3.** Cluster and tie or tape (breakaway technique) the sling legs on top of the spare tire to prevent entanglement during hookup and lift-off. **4.** Connect 2 sling legs to apex fitting number 2. Position the apex fitting on the rear of the cargo deck. **5.** Loop the chain end of the sling legs through their respective lift ring, located forward of the 5th wheel. Place the correct link from Table 2-21 in the grab hook. Secure all excess chain with tape or Type III nylon cord. **6.** Cluster and tie or tape (breakaway technique) the sling legs together to prevent entanglement during hookup and lift-off.

Figure 2-20. Medium Tactical Vehicles, Tractor M1088/M1088A1 (continued)

2-21.1 Light Medium Tactical Vehicles M1078/M1078A1/M1079A1/M1081

a. Applicability. The following items in Table 2-20.1 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-20.1. Light Medium Tactical Vehicles

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Light Medium Tactical Vehicle, Cargo, M1078	23,200	25K	30/20	CH-47	110
Light Medium Tactical Vehicle, Cargo, M1078A1	23,200	25K	30/20	CH-47	110
Light Medium Tactical Vehicle, Shopvan, M1079A1	23,200	25K	30/20	CH-47	110
Light Medium Tactical Vehicle, Cargo, M1081	23,000	25K	30/20	CH-47	110

WARNING
EXCEEDING THE RECOMMENDED AIRSPEED LISTED IN TABLE 2-20.1 MAY RESULT IN DAMAGE TO THE WINDSHIELDS OF THE VEHICLES.

b. Materials. The following materials are required to rig this load:

(1) Sling set (25,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (6 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (6 each).

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

c. Personnel. Two persons can prepare and rig this load in 15 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Fold the cab sides up and fasten the roof to the cab if the cab is in the stowed/airdrop position (airdrop variant only).

(b) Extend the front lift provisions and the rear load spreaders and lock in place using the attached pin and safety pin.

(c) Roll up the windows in the cab.

(d) Tape all windows, lights, and reflectors.

(e) Remove the air intake cowling by loosening the the clamp and twisting off. Place the cowling on the floor board of the passenger's side.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel using the driver's side seat belt.

(g) Fold the side view mirrors back and secure with tape or Type III nylon cord.

(h) Safety the cargo bed walls securing clips in the secured position with tape (only if the cargo bed walls are not stowed in the racks under the bed).

(i) Stow the mud flaps by bending and hooking on the mud flap hooks.

(j) Engage the vehicle parking brake and put the transmission in neutral.

(k) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(l) Tape the filler pipes behind the cab on the driver's side to prevent the sling legs from becoming entangled.

(m) Secure any cargo in the bed of the vehicle.

(2) Rigging. Rig the load according to the steps in Figure 2-19.1.

(3) Hookup. The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

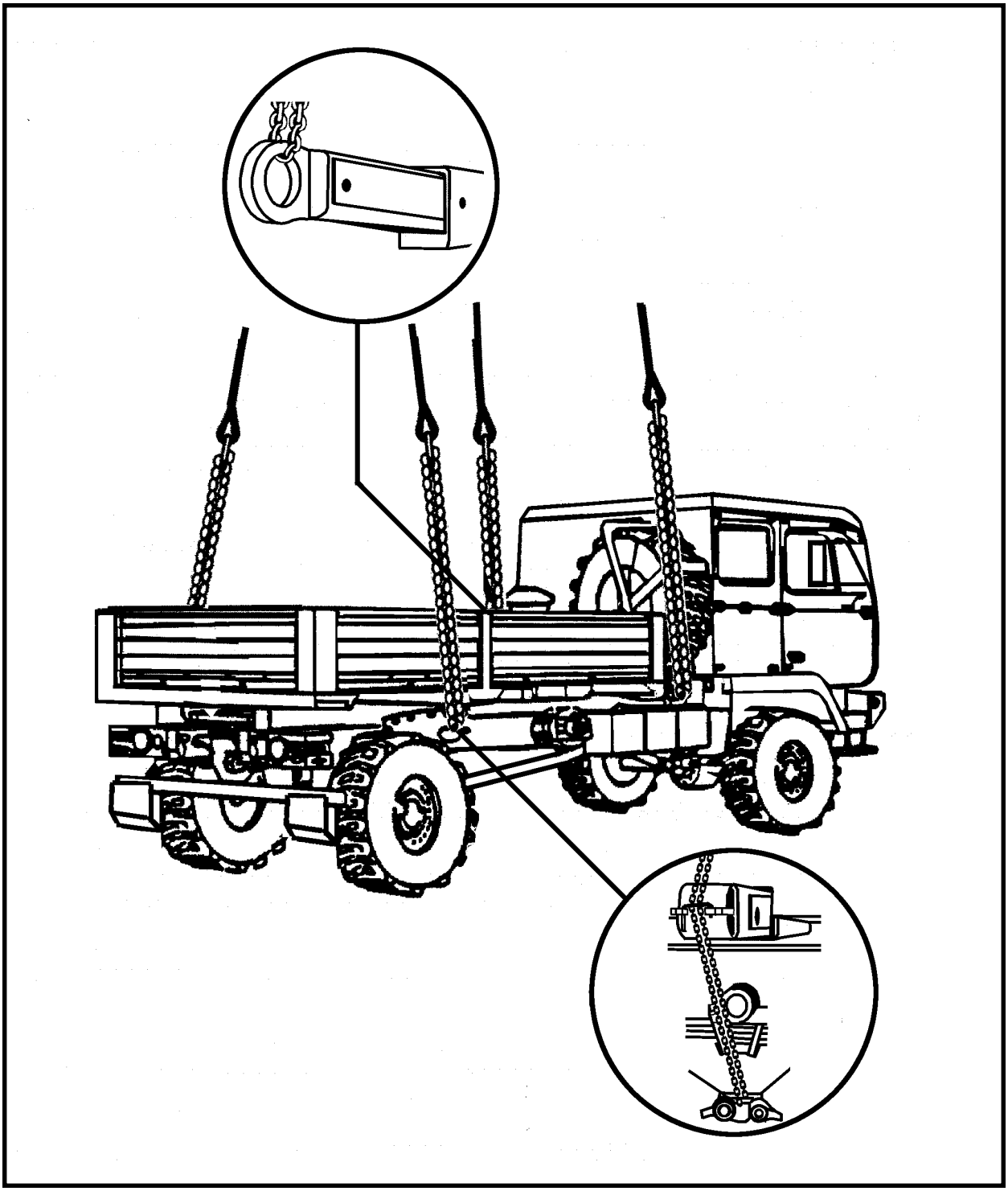


Figure 2-19.1. Light Medium Tactical Vehicles

RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Attach one extra chain length to each existing chain on each sling leg using one coupling link. Position the apex fitting on the forward end of the bed.

2. Loop the chain end of the sling legs through their respective lift provisions located behind the vehicle cab. Place the correct link from Table 2-20.1 in the grab hook and secure all excess chain with tape or Type III nylon cord.

3. Cluster and tie or tape (breakaway technique) the sling legs on top of the spare tire to prevent entanglement during hookup and lift-off.

4. Connect 2 sling legs to apex fitting number 2. Attach two extra chain lengths to each existing chain on each sling leg using one coupling link for each additional chain length added. Position the apex fitting on the rear of the cargo bed.

5. Route the left and right chains through their respective rear load spreader and loop the chain end of the sling legs through their respective lift ring, located on the chassis near the rear axle. Route the chains back through the rear load spreaders and place the correct link from Table 2-20.1 in the grab hook. Secure all excess chain with tape or Type III nylon cord.

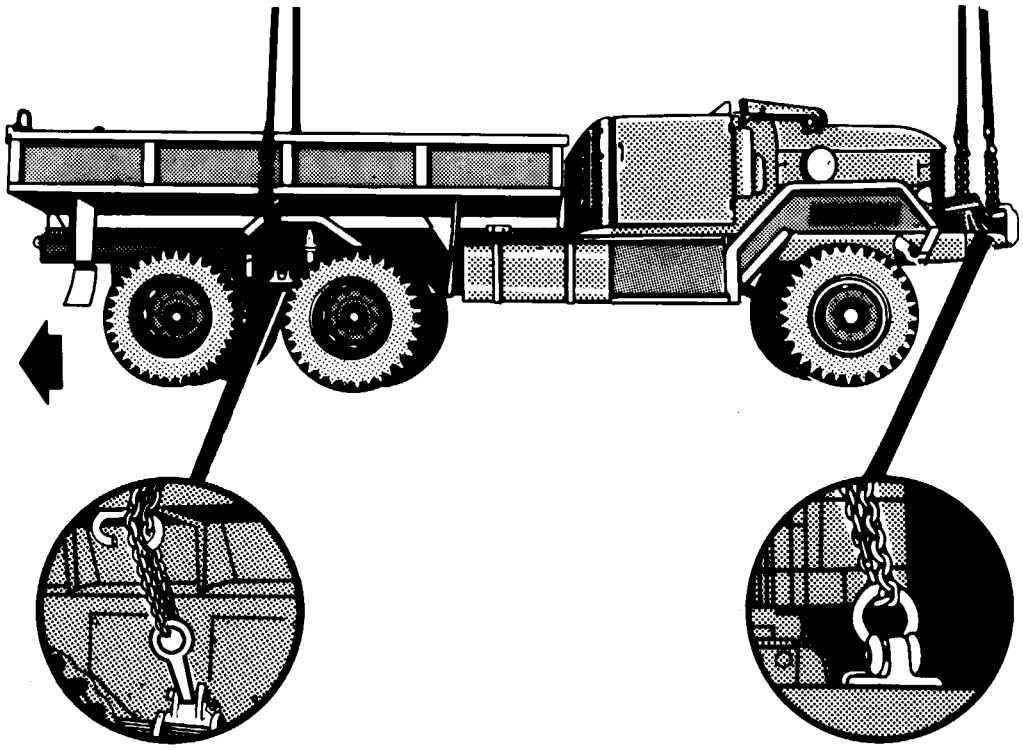
6. Cluster and tie or tape (breakaway technique) the sling legs together to prevent entanglement during hookup and lift-off.

Figure 2-19.1. Light Medium Tactical Vehicles (continued)

NOTE: This vehicle flies aft end forward.

(3) Hookup. Two hookup teams are used for this load. The static discharge person discharges the static electricity. The forward hookup person stands in the truck bed and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the passenger seat and places apex fitting 2 onto the aft cargo hook. The hookup teams then carefully dismount the load and remain close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup teams quickly exit the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Place two sling legs on apex fitting number 1. Position apex fitting number 1 in the bed of the truck.

2. Loop the chain end of the left and right sling legs through their respective extended lift provision located between the rear wheels. Place the correct link from Table 2-29 in the grab hook.

3. Pull each grab hook up against the side of the truck and tie the chain in the chain guide bracket. Pull both grab hooks together over top of the bed and tie together with 1/4-inch cotton webbing.

3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on the hood.

4. Loop the chain end of the left and right sling legs through their respective lift provision located on the front bumper. Place the correct link from Table 2-29 in the grab hook. Secure the excess chain with tape or Type III nylon cord.

6. Raise the apex fittings above the load. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 2-28. M35A3 2 1/2-Ton Cargo Truck

2-31. M1097A2 (HMMWV) Soft Top Truck With Advanced Field Artillery Tactical Data Systems (AFATADS)

a. Applicability. The following items in Table 2-30 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-30. M1097A2 (HMMWV) Soft Top Truck With Advanced Field Artillery Tactical Data Systems (AFATADS)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
System 2: CHS-2 AN/GYG-3(V)1, with SINGARS AN/VRC-90, AN/VRC-92 and EPLRS installed in the bed. AN/VRC-92 installed in cab.	8,103	10K	50/3	CH-47	100
System 3: CHS-2 AN/GYG-3(V)3, with SINGARS AN/VRC-90, AN/VRC-92 and EPLRS installed in the bed. AN/VRC-92 installed in cab.	8,366	10K	50/3	CH-47	100
System 4: 2 each AN/GYK-37(V)2, with SINGARS AN/VRC-89, AN/VRC-92 and EPLRS.	7,790	10K	50/3	CH-47	100

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).

(b) Coupling link, part number 577-0615, from a 10,000-pound sling set (4 each).

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Padding, cellulose.

c. Personnel. Two persons can prepare and rig this load in 10 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Extend the sling leg chains by connecting one additional chain length to each chain on a 10,000-pound capacity sling set with coupling links.

(b) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord.

(c) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Remove and secure the doors in the front of the vehicle.

(d) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(e) Engage the vehicle parking brake and put the transmission in neutral.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(g) Tape the windshield in an X formation from corner to corner.

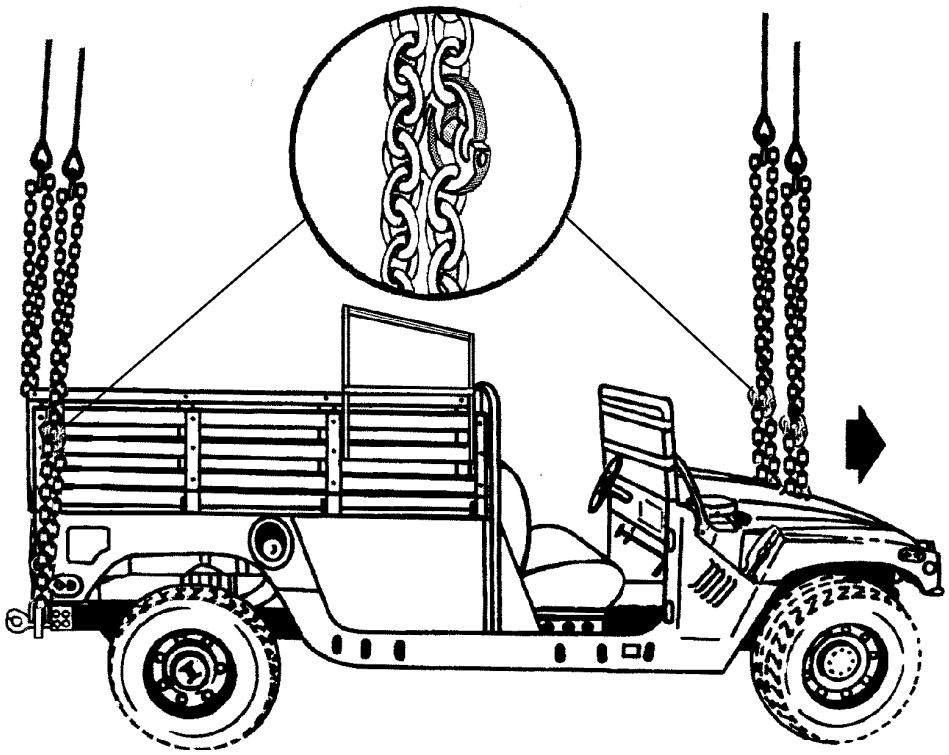
(h) Install the lift provisions on the outer ends of the rear bumper.

(i) Extend the sling leg chains by connecting one additional chain length to each chain using the coupling links.

(2) Rigging. Rig the load according to the steps in Figure 2-29.

(3) Hookup. The hookup team stands on top of the vehicle. The static wand person discharges the static electricity with the static wand. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the shelter.

2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-30 in the grab hook.

3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the shelter.

4. Loop the chain end of the sling legs through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 2-30 in the grab hook.

5. Secure all excess chain with tape or Type III nylon cord.

6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-29. M1097A2 (HMMWV) Soft Top Truck With Advanced Field Artillery Tactical Data Systems (AFATADS)

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

2-33. Interim Fast Attack Vehicle Truck (IFAV), Long Wheel Base

a. Applicability. The following item in Table 2-32 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-32. Interim Fast Attack Vehicle (IFAV) Truck, Long Wheel Base

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Interim Fast Attack Vehicle Truck, Long Wheel Base	5,720	15K	40/3	CH-53	120

b. Materials. The following materials are required to rig this load:

(1) Sling set (15,000-pound capacity for the CH-53 only) with one additional web ring.

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Padding, cellulose.

c. Personnel. Two persons can prepare and rig this load in 10 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord. Remove all canvas covers.

(b) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings.

(c) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

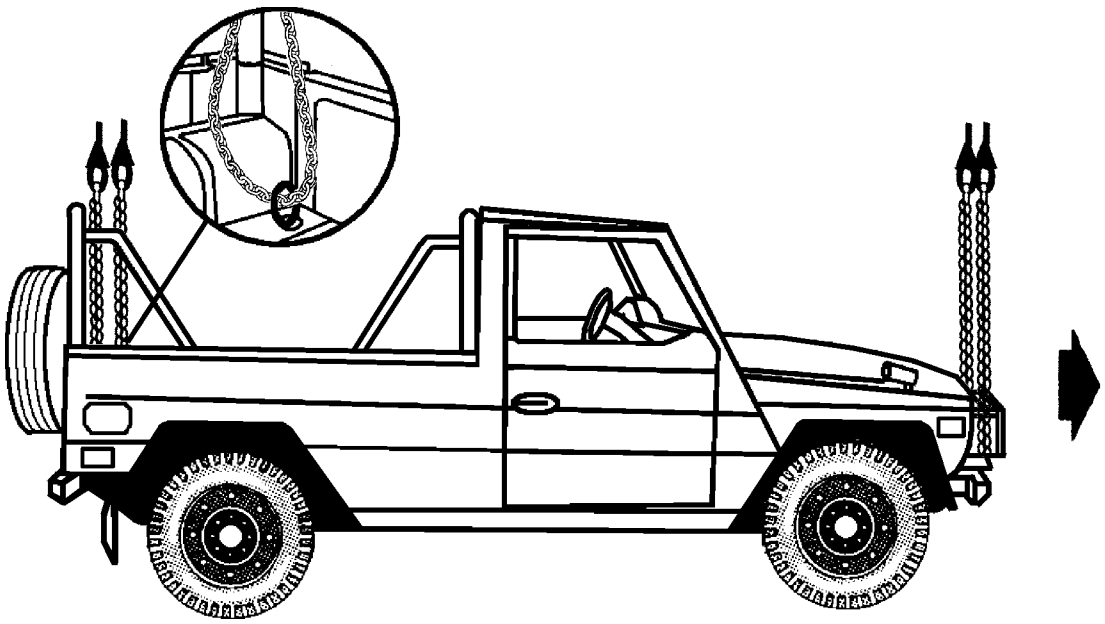
(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel using Type III nylon cord.

(f) Tape the windshield in an X formation from corner to corner.

(2) Rigging. Rig the load according to the steps in Figure 2-31.

(3) Hookup. The hookup team stands on the vehicle. The static wand person discharges the static electricity with the static wand. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Connect 2 sling legs to web ring number 1. Position the apex fitting on the hood of the vehicle.

2. Loop the chain end of the sling legs through their respective lift provisions located on the front bumper of the vehicle. Place the correct link from Table 2-32 in the grab hook.

3. Connect 2 sling legs to web ring number 2. Position the apex fitting in the cargo bed of the vehicle.

4. Loop the chain end of the sling legs through their respective lift provision located in the rear corners of the cargo bed. Place the correct link from Table 2-32 in the grab hook.

5. Secure all excess chain with tape or Type III nylon cord.

6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-31. Interim Fast Attack Vehicle (IFAV) Truck, Long Wheel Base

2-34. Dual Interim Fast Attack Vehicle (IFAV) Trucks, Long Wheel Base, Side by Side (Shotgun Method)

a. Applicability. The following item in Table 2-33 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-33. Dual Interim Fast Attack Vehicle (IFAV) Trucks, Long Wheel Base, Side by Side (Shotgun Method)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Interim Fast Attack Vehicle Truck, Long Wheel Base	11,440	15K	Listed in Rigging Steps	CH-53	120

b. Materials. The following materials are required to rig this load:

(1) Sling set (15,000-pound capacity (2 each).

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Padding, cellulose.

(6) Strap, tiedown, cargo, CGU-1/B (3 each).

c. Personnel. Three persons can prepare and rig this load in 15 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord. Remove all canvas covers.

(b) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings.

(c) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel using Type III nylon cord.

(f) Tape the windshield in an X formation from corner to corner.

(g) Secure the vehicle camouflage net (in the bag) to each vehicle. Attach one net to the forward roadside of the right vehicle and the other to the rear curbside of the left vehicle.

(h) Position the vehicles as close together as possible and ensure the vehicles are facing in the same direction. Route a CGU-1/B cargo tiedown strap through the inboard tiedown provision located below the front bumper of each vehicle. Connect the hooks together and tighten the straps.

(i) Route a CGU-1/B cargo tiedown stap through the pintles of both vehicles and connect the hooks together.

Tighten the strap. Route the second CGU-1/B cargo tiedown strap around the inboard roll bars located directly behind the front seat and connect the hooks together. Tighten the straps.

(2) Rigging. Rig the load according to the steps in Figure 2-32.

(3) Hookup. The hookup team stands on the vehicle. The static wand person discharges the static electricity with the static wand. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

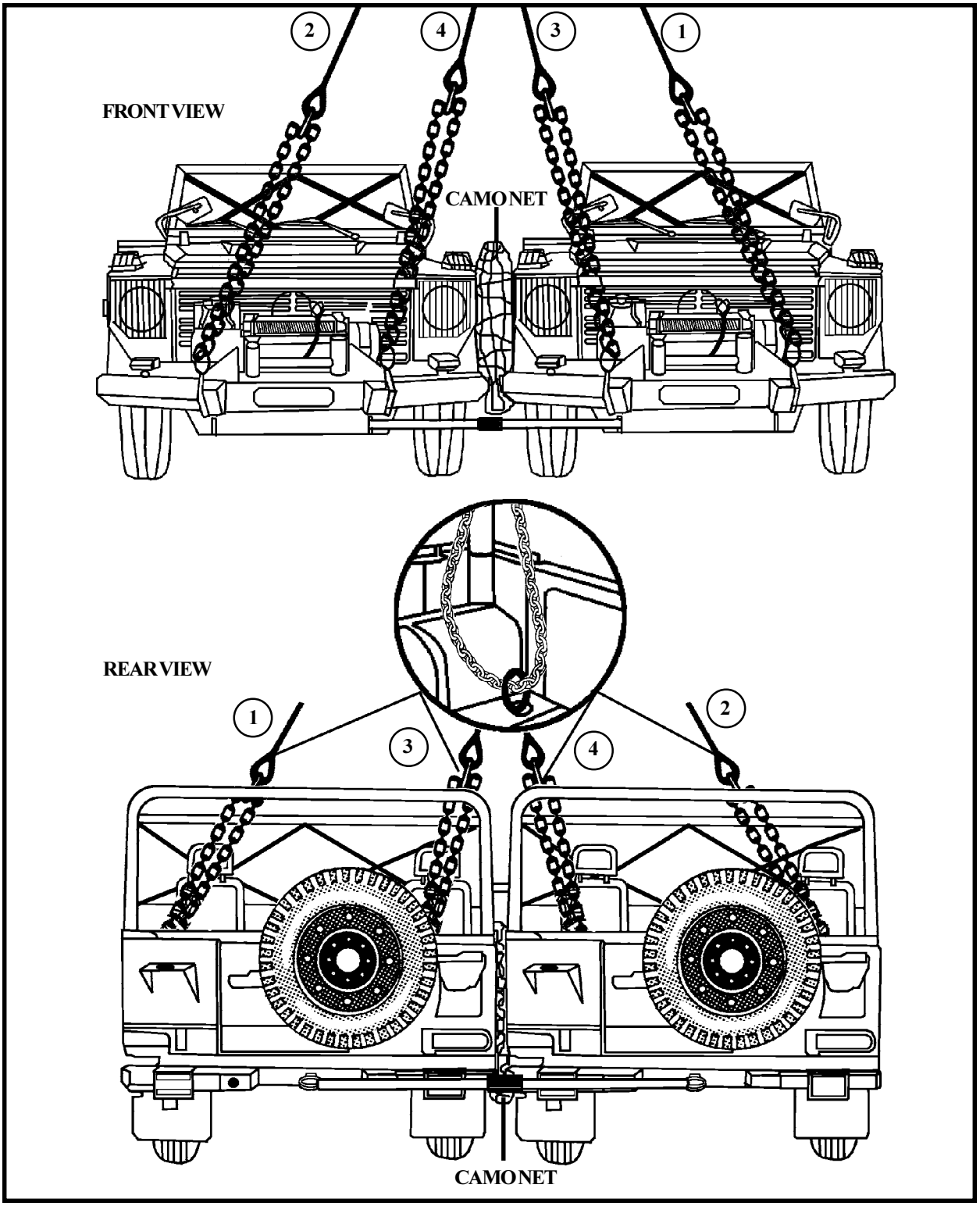


Figure 2-32. Dual Interim Fast Attack Vehicle (IFAV) Trucks, Long Wheel Base, Side by Side (Shotgun Method)

RIGGING STEPS

1. Position sling set 1 on the hood of one of the vehicles.

2. Loop the chain end of sling legs 1 and 2 through their respective outboard lift provisions located on the front of each vehicle. Place link 3 in the grab hook.

3. Loop the chain end of sling legs 3 and 4 through their respective inboard lift provisions located on the front of each vehicle. Place link 10 in the grab hook. Ensure the chains are routed through the chain guides.

4. Position sling set 2 in the bed of one of the vehicles.

5. Loop the chain end of sling legs 1 and 2 through their respective lift provision located in the outside rear corners of the cargo bed. Place link 45 in the grab hook.

6. Loop the chain end of sling legs 3 and 4 through their respective lift provision located in the inside rear corners of the cargo bed. Place link 60 in the grab hook.

7. Secure all excess chain with tape or Type III nylon cord.

8. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-32. Dual Interim Fast Attack Vehicle (IFAV) Trucks, Long Wheel Base, Side by Side (Shotgun Method) (continued)